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~~(c) processing (b) contacting the [second] first product stream with [a second removal apparatus for removing] an agent for converting non-ionized and/or non-ionizable carbon compounds into ionized and/or ionizable carbon compounds at a time and a temperature sufficient to form a second product stream containing a smaller concentration of non-ionized and/or non-ionizable carbon compounds and a larger concentration of ionized and/or ionizable carbon compounds than the first product stream;~~

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~~(c) processing the second product stream with a second removal apparatus for removing ionized and/or ionizable carbon compounds from the water to form a third product stream containing a smaller concentration of ionized and/or ionizable carbon compounds and non-ionized and/or non-ionizable carbon compounds than the first stream; and~~

~~(d) recovering the third product stream from step (e), wherein at least one of said first removal apparatus and said second removal apparatus is selected from the group consisting of electrically regenerated ion exchange apparatus, electrodeionization apparatus, electrodialysis apparatus, filled cell electrodialysis apparatus and electrodiuresis apparatus.~~

2. A method according to claim 1 wherein the first removal apparatus comprises the second removal apparatus.

3. (Amended) A method according to claim 1 wherein one of said [the] first removal apparatus and said second removal apparatus is selected from the group consisting of [a reverse osmosis apparatus, nanofiltration apparatus, ion exchange apparatus,] electrically regenerated ion exchange apparatus, electrodeionization apparatus, electrodialysis apparatus, filled cell electrodialysis apparatus, filled cell electrodialysis apparatus and electrodiuresis apparatus, and one of said first removal apparatus and said second removal apparatus is selected from the group consisting of reverse osmosis apparatus, nanofiltration apparatus, chemically regenerated ion exchange apparatus, activated carbon apparatus and other sorbent apparatus.

4. (Amended) A method according to claim 1, wherein the agent is [an oxidizing agent] selected from the group consisting of an oxygen, ozone, singlet oxygen, hydrogen peroxide, chemical oxidizing agent, electrolytic oxidizing agent, electrochemical oxidizing agent, catalytic oxidizing agent, thermal oxidizing agent, and radiation and combinations thereof.

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5. (Amended) A method according to claim 4 wherein the oxidizing agent comprises [is selected from the group consisting of a chemical oxidizing agent, electrolytic oxidizing agent, electrochemical oxidizing agent, catalytic oxidizing agent, thermal oxidizing agent, and] radiation characterized by wavelengths of about 184.9 nm.

6. (Amended) A method according to claim [4] 1 wherein the [oxidizing] agent comprises ultraviolet radiation.

7. (Amended) A method according to claim 6 wherein the [radiation is ultraviolet radiation] agent further comprises hydrogen peroxide.

8. (Amended) A method according to claim 6 wherein the [radiation is characterized by wavelengths of about 254 nm and the oxidizing] agent further comprises [ozone] a catalyst.

9. (Amended) A method according to claim 6 wherein the [oxidizing] agent further comprises a catalyst.

10. (Amended) A method according to claim 9 wherein the catalyst [is] comprises titanium oxide.

11. (Amended) A method according to claim [10] 1 wherein the agent comprises ozone and hydrogen peroxide.

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12. (Amended) An apparatus for removing both (i) ionizable and/or ionized carbon compounds and (ii) non-ionized and/or non-ionizable carbon compounds from water comprising

(a) a first removal means for removing from the water ionized and/or ionizable carbon compounds, wherein at least some of such ionized and/or ionizable carbon compounds are susceptible to conversion to [from the water to produce a first product stream;

(b) a conversion means for converting] non-ionized and/or non-ionizable carbon compounds [in the] by conversion means (b) below, to produce a first product stream [into] containing a smaller concentration of ionized and/or ionizable carbon compounds [to form a second product stream] than the first stream;

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[ (c) a second removal means for removing] (b) a conversion means for converting non-ionized and/or non-ionizable carbon compounds into ionized and/or ionizable carbon compounds [from the] at a time and a temperature sufficient to form a second product stream containing a smaller concentration of non-ionized and/or non-ionizable carbon compounds and a larger concentration of ionized and/or ionizable carbon compounds than the first product stream;

(c) a second removal means for removing ionized and/or ionizable carbon compounds from the water to form a third product stream containing a smaller concentration of ionized and/or ionizable carbon compounds and non-ionized and/or non-ionizable carbon compounds than the first stream; and

(d) a recovery means for recovering the third product stream;

wherein at least one of said first removal means and said second removal means is selected from the group consisting of electrically regenerated ion exchange apparatus, electrodeionization apparatus, electrodialysis apparatus, filtered cell electrodialysis apparatus and electrodiuresis apparatus.

13. An apparatus according to claim 12 wherein the first removal means comprises the second removal means.

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14. (Amended) An apparatus according to claim 12 wherein [the] one of said first removal [device] means and said second removal means is selected from the group consisting of

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~~electrically regenerated ion exchange apparatus, electrodeionization apparatus, electrodialysis apparatus, filled cell electrodialysis apparatus and electrodeiaresis apparatus and one of said first removal means and said second removal means is selected from the group consisting of reverse osmosis [device] apparatus, nonfiltrative [device] apparatus, chemically regenerated ion exchange [device] electrically regenerated ion exchange device, electrodeionization device, electrodialysis device, filled cell electrodialysis device, electrodeiaresis device, activated carbon device] apparatus, activated carbon apparatus and other sorbent [device] apparatus.~~

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15. An apparatus according to claim 12 wherein the conversion means comprises contact means for contacting the first product stream with an agent.

16. (Amended) An apparatus according to claim 15 wherein the agent is [an oxidizing agent] selected from the group consisting of a oxygen, ozone, singlet oxygen, hydrogen peroxide, chemical oxidizing agent, electrolytic oxidizing agent, electrochemical oxidizing agent, catalytic oxidizing agent, thermal oxidizing agent, and radiation.

17. (Amended) An apparatus according to claim 16 wherein the oxidizing agent [is selected from the group consisting of a chemical oxidizing agent, electrolytic oxidizing agent, electrochemical oxidizing agent, catalytic oxidizing agent, thermal oxidizing agent, and] comprises radiation characterized by wavelengths of about 184.9 nm.

18. (Amended) An apparatus according to claim 16 wherein the oxidizing agent comprises ultraviolet radiation.

19. (Amended) An apparatus according to claim 18 wherein the [radiation is ultraviolet radiation] agent further comprises hydrogen peroxide.